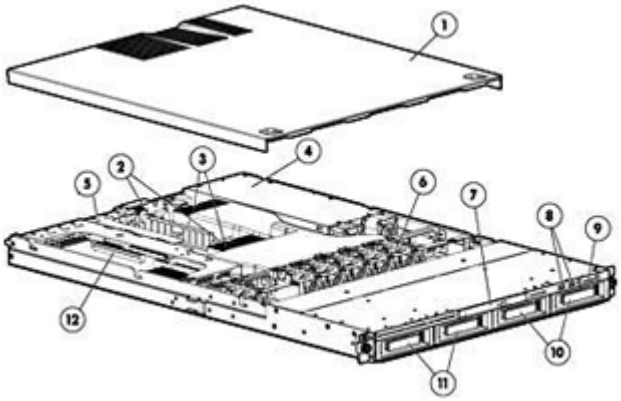
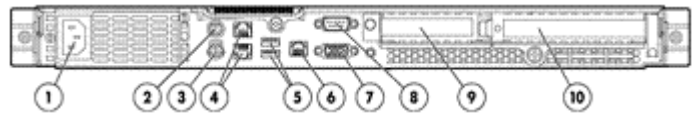
Overview

Hot Plug SAS/SATA or Non-Hot Plug SATA Models





Front View:

1. Access panel
2. Memory banks
3. Two (2) AMD Opteron 2400 series processors
4. Power supply
5. Low-profile PCI-Express or PCI-X slot
6. System fans
7. Optical drive bay
8. Front-panel USB 2.0 ports
9. Power switch/system status LEDs
10. Optional 3rd and 4th 3.5" hot-plug SAS/SATA or non-hot plug SATA hard drive bays
11. Standard 1st and 2nd 3.5" hot-plug SAS/SATA or non-hot plug SATA hard drive bays
12. Full height/full length PCI-Express or HTX slot

Rear View:

1. Power supply cable socket
2. PS/2 mouse port
3. PS/2 keyboard port
4. Two (2) RJ45 GbE LAN ports
5. Rear panel USB 2.0 ports
6. Lights-Out 100 10/100Mbps port
7. Video port
8. Serial port
9. Low-profile riser board assembly slot cover
10. Full-sized riser board assembly slot cover

At A Glance

Introducing the HP ProLiant DL165G6, now available with the latest high performance Opteron Six Core processors and a new high efficiency power supply.

- Processors:
  - Supports up to two AMD Opteron™ 2400 series Six-Core processors
  - Supports DirectConnect Architecture
  - Supports Power Now
- Memory:
  - 8 DIMM slots supporting up to 32GB REG PC2-6400 DDR2-800 MHz memory with Advanced ECC
  - 8 DIMM slots supporting up to 64GB REG PC2-5300 DDR2-667 MHz memory with Advanced ECC
- Internal Drive Support:
  - Internal storage capacity:
    - SATA Capacity: Support for up to 4.0TB (4 x 1TB) with Hot Plug Model. 3.0TB (4 x 750GB) with Non Hot Plug Model
    - SAS Capacity: Support for up to 4.0 TB (4 x 1TB) with Hot Plug Model
      NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth

Overview

Hard Drives for Hot Plug models only.

- Network Controller:
  - Embedded NC7782 dual-port gigabit server adapter
- Storage Controllers:
  - Non-Hot Plug SATA Models: HP Embedded SATA Controller
  - Hot Plug SATA/SAS Models: HP P212 Smart Array Controller
- Expansion Slots:
  - Standard - PCI-Express assembly includes:
    - Slot 1: full-length/full height PCI-Express x16
    - Slot 2: half-length/low-profile PCI-Express x4 (x8 connector) (Reserved in the Hot Plug Model for Smart Array Controller)
  - Optional - PCI-X assembly includes:
    - Slot 2: half-length/low-profile PCI-X 133 (note: PCI-X slots are 64 bits; 133 MHz capable)
  - Optional - HTX assembly includes: Slot 1: full-length/full height HTX
- Management:
  - HP ProLiant Onboard Administrator Powered Lights-Out 100i with optional LO100i Advanced Licenses for Virtual KVM and Virtual Media.
  - Array Configuration Utility (ACU)
  - Array Diagnostics Utility (ADU)
- USB Ports:
  - Up to five USB ports (two front & two rear standard, 1 internal option)
- Optical Drive:
  - Support for one (optional): DVD-ROM, DVD/CD RW
- Power Supply:
  - 500W High Efficiency Power Supply (Non-Hot Plug, Autoswitching)
- Form Factor:
  - Rack (1U)
  - Fixed mounting rails included with all models
- Deployment/Serviceability:
  - HP ProLiant DL165 G6 models have fixed rails which provide support for racks with round mounting holes and tool-free support for racks with square mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 26" - 36
  - Tool-less access to all system components for easy in-rack serviceability
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one year warranty. SAS hard drives have a three year warranty.
    NOTE: Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	AMD Opteron™ processor Model 2435 (2.6 GHz, 75W ACP) AMD Opteron™ processor Model 2431 (2.4 GHz, 75W ACP) NOTE: Offered through Configure-To-Order only. See Factory Integrated Models section for more details. AMD Opteron™ processor Model 2427 (2.2 GHz, 75W ACP)
Upgradeability	Upgradeable to two processors
Chipset	ServerWorks HT2100 and HT1000
Cache Memory	Model Series 24xx 6MB shared L3
Memory Protection	Advanced ECC

Memory One of the following depending on Model	Type	REG PC2-6400 DIMMs (DDR2-800) REG PC2-5300 DIMMs (DDR2-667)	
	Standard	4 GB	(2 x 2 GB)
	Maximum	64 GB	(8 x 8 GB)

Network Controller	Embedded NC7782 dual-port gigabit server adapter

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
1	PCI Express	x16	x16	3	Full Height/Full Length	
1	HTX	N/A	N/A	9	Full Height/Full Length	
2	PCI Express	x4	x8	6	Low-profile	
2	PCI-X	64-bit, 133MHz	N/A	2	Low-profile	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

NOTE: Slot 2 is reserved for a storage controller with the Hot Plug Model chassis.

Standard Features

Storage Controller	Non-Hot Plug SATA	HP Embedded SATA Controller
	Hot Plug SATA/SAS	HP Smart Array P212 RAID Controller NOTE: Transfer rate: up to 3 Gb/s SATA, up to 3 Gb/s SAS.
	NOTE: A diskette drive or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD. NOTE: RAID 6 functionality requires the addition of Smart Array Advanced Pack (P/N: 516471-B21).	
Storage	Diskette Drives	Via USB only
	Optical Drives	Optional 8x IDE (ATAPI) DVD-ROM drive, slim
		Optional 24x IDE (ATAPI) DVD-ROM/CDRW drive
	Hard Drives	Up to 4 Non-hot plug SATA 3.5" drives
		Up to 4 Hot plug SATA /SAS 3.5" drives

Maximum Internal Storage	Non-Hot Plug SATA	3.0TB	4 x 750GB
	Hot Plug SATA	4.0TB	4 x 1TB
	Hot Plug SAS	4.0TB	4 x 1TB

Interfaces	Parallel	None
	Network RJ-45(Ethernet)	Embedded NC7782 dual-port gigabit server adapter
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	Up to 5 (two front & two rear standard, 1 internal option).

Graphics	32MB shared supporting 1600x1200x16M resolution
Form Factor	Rack (1U), (1.75 in/4.45 cm)

Standard Features

Server Management Stand Alone Software Product and ProLiant Essentials	Lights-Out 100i	HP Lights-Out 100i Remote Management delivers affordable, entry level remote management capabilities for HP ProLiant 100 Series servers with embedded LO100i. It allows customers or their service providers to remotely manage ProLiant 100 Series servers remotely over a LAN or the Internet and consists of the following: • LO100i Standard is embedded remote management and provides basic remote control via telnet, browser, and IPMI 2.0 and SMASH and comes standard on all ProLiant 100 G6 servers. • LO100i Advanced Pack License are optional key activated license upgrades for virtual media and Virtual KVM (graphical hardware-based, remote console). NOTE: Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100i Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products' QuickSpecs at this link for more information: HP ProLiant Onboard Administrator Powered by LO100: www.hp.com/go/lo100
	Insight Essentials Rapid Deployment Pack	Rapid Deployment Pack extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install using images and scripted profiles. For more information, visit: http://www.hp.com/go/rdp. NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Rapid Deployment Packs. For additional information, please refer http://www.hp.com/go/proliantessentials.
Core Infrastructure Management	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq software and latest drivers	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through software and drivers download pages website at: http://www.hp.com/go/support.

Standard Features

HP Serviceguard for Linux (SGLX)

HP Serviceguard for Linux provides high availability clustering for Linux applications running on HP Integrity, HP ProLiant and other supported industry-standard servers. Serviceguard for Linux reduces planned and unplanned downtime and delivers efficient, continuous access to business-critical applications - with all of the enterprise features you expect from HP.

This high availability clustering solution is designed to protect applications and services from a wide variety of software and hardware failures, monitoring the health of each server (node) and quickly responding to failures such as those that affect system processes, system memory, LAN media and adapters, and application processes.

For the most recent list of Linux distributions & kernels, servers and storage supported with Serviceguard for Linux, please see:
ftp://ftp.compaq.com/pub/products/servers/ha/linux/SGLX_Certification_Matrix.pdf

The following is a quick summary of HP Serviceguard for Linux features and support:

- Supported Virtual Machines
  - SG/LX in HP Integrity Virtual Machines guests
  - SG/LX in VMware ESX guests
  - SG/LX in Red Hat and SUSE Xen hosts (DOM0)
- Application Integration Toolkits
  - HP Serviceguard for Linux Oracle Database Toolkit
  - HP Serviceguard Extension for SAP on Linux (SGeSAP/LX)
  - Free Application Integration Toolkits:
    - Apache
    - MySQL
    - NFS
    - PostgreSQL
    - Samba
    - Tomcat
    - Sendmail
- Disaster Tolerant Solutions
  - HP Serviceguard for Linux Extended Distance Cluster (XDC) extends cluster distances up to 100 km, utilizes software RAID mirroring for data replication and is storage array independent
  - HP StorageWorks XP/EVA Cluster Extension Software for Linux (CLX) works seamlessly with HP Serviceguard for Linux, HP StorageWorks Continuous Access, and HP Disk Arrays to automate failover and failback between sites
- Software updates are distributed by HP Services to customers with support contracts

NOTE: For additional information including software and server support on HP Serviceguard for Linux, visit: http://www.hp.com/go/sglx or see the HP Serviceguard for Linux QuickSpecs.
NOTE: HP Serviceguard for Linux products for HP ProLiant and select 3rd party x86 class servers include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/swsupport.

Standard Features

Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support Microsoft® Logo certifications IPMI 2.0 Compliant	
Embedded Manageability	HP ProLiant Onboard Administrator and LO100i Advanced	HP ProLiant Onboard Administrator (powered by LO100i Lights-Out 100 Baseboard Management Controller) with Optional LO100i Advanced Licenses for Virtual KVM and Virtual Media. Standard Features: • Embedded IPMI standard reporting • System event log access • Remote Serial console (serial redirection) • Browser, Telnet access • SMASH-CLP compliant • IPMI 2.0 compliant • Secure Socket Layer (SSL) Encryption • Secure Shell (SSH) Encryption Licensed Features: • Virtual media (Floppy, CD, USB 2.0) • Virtual KVM
Security	Power-on password Setup password SSH and SSL Encryption	
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html.	
Power Supply	500 Watts, auto-switching, high efficiency, PFC (Power Factor Correcting).	
System Fans	6 system fans ship standard; non-hot plug, non-redundant	

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server 2008 Hyper V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Solaris 10 for x86/x64 based Systems NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/supportos and our driver download page http://www.hp.com/support/DL165G6.
Rack Airflow Requirements	Rack 10000 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches) CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.
Rack Support	The DL Fixed Rail System supports installation in racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 24" - 36". Installation into Telco 2 post, and 4 post, or threaded holes racks requires a 3rd party option kit. For additional information, please visit: www.racksolutions.com.
HP Factory Express Capability	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

Standard Features

HP Enterprise Configurator	The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
Service and Support	HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs. HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack. To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime. Recommended Service - Simplify ProLiant solution implementation, maintenance and management. • Support Service -3 Year, 9x5 Next Business Day coverage, excluding HP holidays only • Deployment Service - Hardware Installation only Enhanced Service - Optimize service level to increase IT performance and availability • Support Service - 3 Year 13x5 Same Business Day, 4-Hour response coverage • Deployment Service - Installation and Start-up only Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays. For a complete listing of service offerings and information visit: http://www.hp.com/services/proliantservices http://www.hp.com/go/proliant/carepack

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL165 G6 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnects	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports or optional 10GbE NICs
	Myrinet XP	PCI-X Rev D, Rev E and Rev F adapters

Hot Plug Serial ATA (SATA)/Serial Attached SCSI (SAS) Models

HP DL165G6 2427 2.2 GHz, 4GB, Hot Plug (1P) 538278-xx1	Processor(s) One of the following depending on model	(1) AMD Opteron™ processor Model 2427 (2.2 GHz, 75W ACP) (2) AMD Opteron™ processor Model 2435 (2.6 GHz, 75W ACP)
	Cache Memory	6MB shared Level 3 cache
HP DL165 G6 2435 2.6 GHz, 8 GB Hot Plug SAS/SATA (2P) 538274-xx1	Memory One of the following depending on model	4 GB (2 x 2GB) Registered PC2-6400 DDR2 DIMMs (800MHz) with Advanced ECC capabilities 8GB (4 x 2GB) Registered PC2-6400 DDR2 DIMMs (800MHz) with Advanced ECC capabilities
	Network Controller	Embedded NC7782 dual-port gigabit server adapter
	Storage Controller	HP Smart Array P212 (538278-xx1) HP Smart Array P212/256MB/BBWC (538274-xx1)
	Hard Drive	None Ship Standard (up to 4 Hot Plug SATA or SAS drives supported)
	Internal Storage One of the following depending on model	SATA: 4.0TB Maximum SAS: 4.0TB Maximum
	Optical Drive	None Ship Standard (1 DVD-ROM or DVD/CD RW supported)
	Form Factor	Rack (1U)

Country Code Key	xx = 00	U.S.
	xx = 20	Brazil (Model 445164-201 only)
	xx = 29	Japan
	xx = 37	APD
	xx = 42	Euro
	xx = AA	PRC

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a Factory Installable Option.

Step 1: Base Configuration

Non-Hot Plug SATA Model

HP ProLiant DL165 G6 Non-Hot Plug SATA Rack Chassis — 572227-B21

Factory Integrated Model ships with:

Embedded NC7782 dual-port gigabit server adapter

Two available PCI-Express slots, including one full-length/full height and one low-profile/half height slot

HP embedded SATA controller

One Highline IEC Power Cord

6 Fixed, Non-Redundant Fans

Rack (1U), (1.75 in / 4.45 cm)
Tool-less Fixed Rails

Hot Plug SATA/SAS Model

HP ProLiant DL165 G6 Hot Plug SATA/SAS Rack Chassis — 572228-B21

Factory Integrated Model ships with:

Embedded NC7782 dual-port gigabit server adapter

One full-length/full height PCI-Express slot.
Low-profile/half height slot houses the HP Smart Array P212 storage controller

One Highline IEC Power Cord

6 Fixed, Non-Redundant Fans

Rack (1U), (1.75 in / 4.45 cm)
Tool-less Fixed Rails

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors

AMD Opteron™ processor Model 2435 (2.6 GHz, 75W ACP), Option Kit, FIO — 572221-L21
NOTE: If 2 processors are desired, select one 572221-L21 and one 572221-B21.

AMD Opteron™ processor Model 2431 (2.4 GHz, 75W ACP), Option Kit, FIO — 572219-L21
NOTE: If 2 processors are desired, select one 572219-L21 and one 572219-B21.

AMD Opteron™ processor Model 2427 (2.2 GHz, 75W ACP), Option Kit, FIO — 572142-L21
NOTE: If 2 processors are desired, select one 5721421-L21 and one 572142-B21.

Configuration Information - Factory Integrated Models

Memory	2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
	4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21
	8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
	8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
	16 GB REG PC2-5300 2 x 8 GB Kit	408855-B21
	64 GB REG PC2-5300 8 x 8 GB Kit	495605-B21
Hard Drive	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components	
	NOTE: Required only if P/N 445147-B21 selected in Step 1.	
	Serial-ATA (SATA) Non-Hot Plug Hard Drives (Non-Hot Plug Models Only)	
	SATA Non-Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	SATA Non-Hot Plug Midline (MDL) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
Storage Controllers	NOTE: A minimum of one Smart Array Controller is required when purchasing Hot Plug CTO Chassis Model (P/N 572228-B21).	
	NOTE: In order to upgrade to RAID 6, at least 256MB Cache and a Battery is required in addition to the Smart Array Advanced Pack license (516471-B21).	
	HP P212/256 MB FIO Smart Array BBWC	491191-B21
	HP P410/ZM FIO Smart Array Controller	462860-B21
Power Supply	Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor	
	HP High Efficiency 500W Multi-output Power Supply Kit	536928-B21

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options", please refer to the "Options" sections below. Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

Core Options

Processor	AMD Opteron™ processor Model 2435 (2.6 GHz,75W ACP)	572221-B21
	AMD Opteron™ processor Model 2431 (2.4 GHz, 75W ACP)	572219-B21
	AMD Opteron™ processor Model 2427 (2.2 GHz,75W ACP)	572142-B21
Memory (DIMMs)	2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
	4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21
	8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
	8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
	16 GB REG PC2-5300 2 x 8 GB Kit	408855-B21
	64 GB REG PC2-5300 8 x 8 GB Kit	495605-B21
Optical Drives	DVD-ROM Drive	447889-B21
	DVD/CD RW Drive	447891-B21
Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	Serial-ATA (SATA) **Non-Hot Plug Hard Drives** (Non-Hot Plug Models Only)	
	SATA Non-Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	SATA Non-Hot Plug Midline (MDL) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	Serial-ATA (SATA) **Hot Plug Hard Drives** (SATA/SAS Hot Plug Models Only)	
	SATA Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
	SATA Hot Plug Midline (MDL) Drives	
	HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
	HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
	HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
	HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
	NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
	SAS Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 3G SAS 15K 3.5" DP ENT HDD	454232-B21
	HP 400GB 3G SAS 10K 3.5" DP ENT HDD	459508-B21
	HP 300GB 3G SAS 15K 3.5" DP ENT HDD	416127-B21

Core Options

	HP 146GB 3G SAS 15K 3.5" DP ENT HDD	384854-B21
	HP 72GB 3G SAS 15K 3.5" DP ENT HDD	384852-B21
	SAS Hot Plug 3.5" Midline (MDL) Drives	
	HP 1TB 3G SAS 7.2K 3.5" DP MDL HDD	461137-B21
	HP 750GB 3G SAS 7.2K 3.5" DP MDL HDD	461135-B21
	NOTE: The purchase of SAS HBA or array controller is required.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
Communications	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter.	
	NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Additional Options

Server Management Stand Alone Software Product	NOTE: Electronic licensing options are available for Insight Control suites and select ProLiant Essentials software products. Please see the appropriate Insight Control and ProLiant Essentials QuickSpecs for additional information.	
	Control	
	HP Lights-Out 100i Advanced Pack	
	HP LO100i Advanced Pack, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: For additional License Kits please see the Lights-Out 100i Advanced QuickSpecs at: www.hp.com/go/lo100. NOTE: Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100i Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to QuickSpecs at this link for more information: http://h18004.www1.hp.com/products/servers/management/remotemgmt.html	530521-B21
	Deploy	
	Rapid Deployment Pack	
	Insight Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: For additional license kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to: http://www.hp.com/go/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/go/proliantessentials.	452151-B21
Graphic Cards	HP NVIDIA Quadro FX3700 512MB PCI-e Kit NOTE: Use Slot 2, PCI-E x16 Full Length Slot.	490062-B21
	HP Graphic Card Power Adapter Kit	533955-B21
Hot Plug HDD Backplane Option	Hot Plug HDD Backplane 1U 2S Kit NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.	445985-B21

Additional Options

Storage Controllers	NOTE: The addition of storage controllers for internal hard drive use is intended for use ONLY with the Hot Plug SATA/SAS Model Chassis (572228-B21).	
	SCSI HBA	
	HP SC08Ge Host Bus Adapter	488765-B21
	HP SC11Xe Host Bus Adapter	412911-B21
	NOTE: Recommended for SCSI tape connect.	
	HP StorageWorks U320e SCSI Host Bus Adapter	AH627A
	NOTE: Recommended for MSL SCSI Tape Library connect.	
	NOTE: Please see the following QuickSpecs for Technical Specifications additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	
	SAS Controllers	
	Smart Array P212 Controller	
	HP P212/ZM Smart Array Controller	462828-B21
	HP Smart Array P212/256MB Controller	462834-B21
	Smart Array P410 Controller	
	HP Smart Array P410/256	462862-B21
	HP Smart Array P410/256 MB BBWC	491195-B21
	HP Smart Array P410/512 MB BBWC	462864-B21
	Storage Controllers for use with External Storage Only	
	HP Smart Array P411/256MB Controller	462830-B21
	HP Smart Array P411/512MB BBWC	462832-B21
	NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller)	
	Smart Array P800 Controller	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller)	
	Riser Board Kits	
	HP HTX Riser Board Kit	445987-B21
	HP PCI-X L/P Riser Kit	452698-B21
	NOTE: Replaces the standard Half Height (LP) PCI Express slot with a Half Height (LowProfile) PCI-X slot.	

Additional Options

HPC Specific Options	HP IB 4X DDR PCI-e Dual Port HCA	448397-B21
	HP IB 4X DDR PCI-e Dual Port 0 Memory HCA	483513-B21
	HP 10 GbE PCI-e G2 Dual Port Adapter	516937-B21
	NOTE: For HPC interconnect adapters please see the HPC Interconnect section of this QuickSpecs.	
Tape Drives	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	USB Rack-Mount Tape Solutions	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive NOTE: Pre-configured with one DAT 160 USB tape drive.	AG703A
	SAS Rack-Mount Tape Solutions NOTE: HP recommends purchasing the HP Smart Array P212 (462828-B21) for a dedicated SAS HBA for tape.	
	HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760 NOTE: Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.	EH946A
	HP StorageWorks 1U SAS Rack-Mount Kit NOTE: Supports up to (2) half-height SAS tape drives.	AE459A
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	DW085A
	HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	EH847A
Disk-Based Backup	RDX Removable Disk Backup	
	HP StorageWorks RDX320 External Removable Disk Backup System NOTE: 320GB of Disk Storage.	AJ768A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3 TB raw capacity/2.25 TB useable capacity.	EH952A
	HP StorageWorks D2D2502i Backup System NOTE: 2 TB raw capacity/1.5 TB useable capacity.	EJ001A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://www.hp.com/go/d2d.	

Additional Options

Tape Autoloaders	**HP StorageWorks 1/8 G2 Tape Autoloader**	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.	AH166A
	NOTE: Please reference the QuickSpecs for Technical Specifications and http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs	
Tape Libraries	**HP StorageWorks MSL2024 Tape Library**	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
High Availability Cluster Options	HP Serviceguard for Linux on HP ProLiant and other third-party x86 Servers - Physical Media Kit NOTE: This kit contains media only.	519353-B21
	HP Serviceguard for Linux on HP ProLiant and other third-party x86 Servers Single-Server License Licensed per Server NOTE: This license allows Serviceguard for Linux to be installed on 1 server. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	519354-B21
	HP Serviceguard for Linux - Flexible-Quantity License (for HP ProLiant and other third-party x86 servers) Licensed per Server NOTE: This part number can be used to purchase multiple licenses with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	519355-B21
	HP Serviceguard Linux Oracle Database Toolkit for HP ProLiant/x86 Servers Licensed per cluster Includes media and One Year 24x7 Software Support & Updates	463833-B21
	HP Serviceguard Extension for SAP on Linux for HP ProLiant/x86 Servers Licensed per physical server Includes media and One Year 24x7 Software Support & Updates	463834-B21
	HP Serviceguard Linux Extended Distance Cluster (XDC) for HP ProLiant/x86 Servers Licensed per physical server Includes media and One Year 24x7 Software Support & Updates	463835-B21

NOTE: The above is not a complete list of all HP Serviceguard for Linux product numbers. For a detailed list of supported configuration/certification options for HP Serviceguard for Linux, please refer to the HP Serviceguard for Linux Configuration & Ordering Guide available at: http://www.hp.com/go/sglx/info.
NOTE: HP Serviceguard for Linux products running on x86 platforms now include one year of 24 x 7 Software Technical Support and Updates. Please see the Support Information section of the HP Serviceguard for Linux QuickSpecs for details.
NOTE: For additional information including a complete list of Product Numbers for HP Serviceguard for Linux, please see the following QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html

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StorageWorks Options

StorageWorks Fibre Channel HBA

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:
http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4Gb PCI-e HBA	A8003A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4Gb PCI-e HBA	AE312A
HP StorageWorks FC2143 4Gb PCI-X 2.0 -FC HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 FC HBA	AD168A
HP StorageWorks FC1143 4Gb PCI-X 2.0 FC HBA	AB429A
HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 FC HBA	AE369A
HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
HP StorageWorks 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
HP StorageWorks 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
HP StorageWorks 81Q 8Gb PCI-e FC HBA	AK344A

StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter	AH627A

NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.

HP StorageWorks 50 Modular Smart Array

HP StorageWorks 50 Modular Smart Array NOTE: Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power supplies and hot plug fans.	364430-B21
HP StorageWorks 50 Modular Smart Array Enclosure (Japan) NOTE: Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power supplies and hot plug fans. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/12245_div/12245_div.html	364430-291

Additional Options

HP StorageWorks 60 Modular Smart Array	HP StorageWorks 60 Modular Smart Array NOTE: Rack-mountable 12-drive (3.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/12627_div/12627_div.html	418408-B21
HP StorageWorks 70 Modular Smart Array	HP StorageWorks 70 Modular Smart Array NOTE: Rack-mountable 25-drive (2.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/12652_div/12652_div.html	418800-B21
Uninterruptible Power Systems - Rack	HP R1500 G2 UPS HP, R1.5kVA UPS, 1U, NA HP, R1.5kVA UPS, 1U, INTL HP, R1.5kVA UPS, 1U, JPN/TW NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html (Worldwide) NOTE: For additional information on sizing your server, please reference: http://www.upssizer.com HP R3000 UPS Uninterruptible Power System HP R3000 UPS NOTE: The R3000v is available in China and India only. NOTE: Please see UPS QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html (Worldwide) NOTE: For additional information on HP Uninterruptable Power Systems please go to: www.hp.com/servers/rackups.	 AF419A AF418A AF421A AF444A

Additional Options

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP KVM Switch Options	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack	AF613A
	NOTE: required for supporting USB peripheral.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
USB Options	HP USB Internal Cable Kit	451363-B21
	1.44MB External USB Floppy Drive All	DC141B
	USB Floppy Drive	DC361B
	USB P/S2 Optical Mouse	DC369A
	USB Standard Keyboard All	DT528A
Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U9509E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	U9510E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U9508E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U9511E
	Hardware Installation, Electronic	U9520E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

HP ProLiant DL165 G6 (all models)

Standard Memory

4 GB (2 x 2 GB) PC2-6400 DIMM memory, with Advanced ECC Capabilities memory installed.

Maximum Memory

Up to 64GB memory is available with the optional installation of PC2-5300 Registered DIMM memory kits.

Memory should be installed in pairs and matched for optimum performance.

NOTE: Chart does not represent all possible memory configurations.

NOTE: Each processor support 4 DIMM sockets. Both processors sockets must be populated in order to use all 8 DIMM sockets.

Memory	Slot							
	1	2	3	4	5	6	7	8
Standard (4 GB)	2 GB	2 GB	Empty	Empty	Empty	Empty	Empty	Empty
Maximum (64 GB)	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB

Following are memory options available from HP:

2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21
8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
16 GB REG PC2-5300 2 x 8 GB Kit	408855-B21
64 GB REG PC2-5300 8 x 8 GB Kit	495605-B21

1-4 Non-hot plug 3.5" SATA or Hot-plug SAS/SATA hard drive bays

A Optional DVD-ROM, or DVD/CD RW

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	A	Integrated IDE (ATAPI) (optional)
DVD/CD RW	Up to 1	A	Integrated IDE (ATAPI) (optional)

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SATA Non-Hot Plug Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 4	1-4	HP Embedded SATA Controller

SATA Non-Hot Plug Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
750GB 3G SATA 7.2K 500GB 3G SATA 7.2K 250GB 3G SATA 7.2K	Up to 4	1-4	HP Embedded SATA Controller

3.5" SATA Non-Hot Plug Drives

	Quantity Supported	Position Supported	Controller
500GB 1.5G SATA 7.2K 250GB 1.5G SATA 7.2K 160GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA Controller

SATA Hot Plug Entry (ETY) Drives (3.5")

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 4	1-4	HP P212 Smart Array Controller HP P410 Smart Array Controller

3.5" SATA Hot Plug Drives

	Quantity Supported	Position Supported	Controller

Storage

750GB 1.5G SATA 7.2K 500GB 1.5G SATA 7.2K 250GB 1.5G SATA 7.2K 160GB 1.5G SATA 7.2K	Up to 4	1-4	HP P212 Smart Array Controller HP P410 Smart Array Controller

SATA Hot Plug Midline (MDL) Drives (3.5")

	Quantity Supported	Position Supported	Controller
1TB 3G SATA 7.2K 750GB 3G SATA 7.2K 500GB 3G SATA 7.2K 250GB 3G SATA 7.2K	Up to 4	1-4	HP P212 Smart Array Controller HP P410 Smart Array Controller

SAS Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
450GB 3G 15K 400GB 3G 10K 300GB 3G 15K 146GB 3G 15K 72GB 3G 15K	Up to 4	1-4	HP P212 Smart Array Controller HP P410 Smart Array Controller

SAS Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1 TB 3G 7.2K 750GB 3G 7.2K	Up to 4	1-4	HP P212 Smart Array Controller HP P410 Smart Array Controller

Tape and Disk-Based Backup

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: http://www.hp.com/go/connect
NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212/ZM Controller	462828-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048	External	HP SC11Xe Host Bus Adapter HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	412911-B21 AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	External	HP Smart Array P212/ZM Controller	462828-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A
HP StorageWorks RDX Removable Disk Backup System, External RDX160 RDX320 RDX500	External	USB 2.0 port	N/A

Storage

HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2500 D2D4000	External	Embedded Network Controller	N/A

External Storage

	Quantity Supported	Position Supported	Controller
50 Modular Smart Array	Up to 4	External	HP Smart Array E500/256MB Controller
	Up to 4		HP Smart Array P800/512 BBWC Controller
60 Modular Smart Array	Up to 4	External	HP Smart Array E500/256MB Controller
	Up to 8		HP Smart Array P800/512 BBWC Controller
	Up to 4		HP Smart Array P212/ZM Controller
	Up to 4		HP Smart Array P212/ 256 MB Controller
	Up to 8		HP Smart Array P411/256 MB Controller
	Up to 8		HP Smart Array P411/512 MB BBWC Controller
70 Modular Smart Array	Up to 4	External	HP Smart Array E500/256MB Controller
	Up to 4		HP Smart Array P800/512 BBWC Controller
	Up to 2		HP Smart Array P212/ZM Controller
	Up to 2		HP Smart Array P212/ 256 MB Controller
	Up to 4		HP Smart Array P411/256 MB Controller
	Up to 4		HP Smart Array P411/512 MB BBWC Controller

Power Specifications

HP 500W Power Supply Part Number - AC 500W PSU	515915-B21 Option Kit					
Input Voltage Range (Vrms)	100 to 240					
Frequency Range (Nominal) (Hz)	47/63					
Nominal Input Voltage (Vrms)	100	120	200	220	230	240
Maximum Rated Output Wattage	500	500	500	500	500	500
Nominal Input Current (A rms)	5.74	4.99	2.86	2.58	2.46	2.36
Max Rated Input Wattage Rating (Watts)	568	568	562	556	556	556
Max. Rated VA (Volt-Amp)	574	574	573	567	567	567
Efficiency (%) at Max. Rated Output Wattage	88	88	89	90	90	90
Power Factor	0.99	0.99	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.42	0.50	0.81	0.91	0.95	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)						

NOTE:
To review typical system power ratings use the Active Answers Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

System Specifications

Power

ProLiant DL165 G6 Fully Configured	115V/60Hz	220V/50Hz
Fully Loaded System Input Wattage (W)	568	556
Fully Loaded System Input Current (A rms)	4.99	2.58
Fully Loaded System Thermal (BTU- Hr)	1939.15	1898.18
Fully Loaded System VA (Volt-Amp)	574	567
System Inrush Current with all power supplies loaded (A)	30	30
Power cord requirements	Nema 5-15P to IEC320-C13	IEC320-C13 to IEC320-C14

NOTE: Power shown is for a fully configured system consisting of (2) CPU, (8) double-sided DIMMs, (2) HDDs, (1) CD-ROM, and (2) PCI cards.

Power Cord AF556A

Server Power Cords

One 6' Highline (IEC-IEC) power cord ships standard

NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.

System Unit	Dimensions (H x W x D) (with bezel)	1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.20 cm)		
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	37.00 lb (16.78 kg)	
		Minimum (one hard drive, power supply, and processor installed)	30.00 lb (13.69 kg)	
	Input Requirements (per 500W power supply)	Rated Line Voltage	100 to 127 VAC 200 to 240 VAC	
		Rated Input Current	4.99A (at 115 VAC), 2.46A (at 230 VAC)	
		Rated Input Frequency	47 to 63 Hz	
		Rated Input Power	574W (at 100 VAC) 573W (at 200 VAC)	
	BTU Rating	Maximum	500W	1700 BTU / hr (at 100 VAC) 1700 BTU/hr (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL165 G6 - Follow the instructions of the next screens.		
	Power Supply Output (per power supply)	Rated Steady-State Power	500 Watts (at 100 VAC), 500 Watts (at 200 VAC)	
		Maximum Peak Power	500 Watts (at 100 VAC), 500 Watts (at 200 VAC)	
	Optional High Efficiency Power Supply Specifications			
	Input Requirements (per power supply)	Rated Line Voltage	90-132 VAC, 200-240 VAC	
		Rated Input Current	9.4 A (at 115 VAC), 7.8 A (at 230 VAC)	
		Rated Input Frequency	47 to 63 Hz	
		Rated Input Power	1075 W (at 100 VAC), 1375W (at 200 VAC)	
	BTU Rating	Maximum	3070.93 BTU/hr (at 100 VAC), 4094.57 BTU/hr (at 200 VAC)	

Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient - Click on the system of interest. Example: DL165 G6 - Follow the instructions of the next screens.	
Power Supply Output (per power supply)	Rated Steady-State Power	900 W (at 100 VAC), 1200 W (at 200 VAC)
	Maximum Peak Power	900 W (at 100 VAC), 1200 W (at 200 VAC)
System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	LWAd	6.82 B
	LpAm	51.93 dBA
	Operating	
	LWAd	6.84 B
	LpAm	51.93 dBA
Emissions Classification	**FCC Rating**	Class A

	(EMC)	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
		NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

HP 160GB 1.5G SATA 7.2K NHP 3.5" ETY HDD 458947-B21	160-GB 7.2K	Capacity	160,041 MB	
		Height	1.028 in (2.61 cm)	
		Width	4.0 in (10.16 cm)	
		Depth	5.787 in (147.0 mm)	
		Interface	Serial ATA	
		Transfer Rate Synchronous (Maximum)	1.5Gb/s	
		Native Command Queuing	N/A	
		Seek Time (typical reads, including settling)	Single Track	2.0 ms
			Average	<11 ms
			Full-Stroke	23.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)	

Embedded SATA Controller	Drives Supported	Up to 4 SATA devices
	Channels	4 1.5Gb SATA
	Storage Capacity	3.0TB internal storage
	Data Transfer Method	32-bit/33-MHz PCI bus-master
	Maximum SATA Channel Transfer Rate	1.5Gb/s per channel
	Maximum Transfer Rate per PCI Bus (peak)	266 MB/s per channel
	Protocols	SATA
		PIO Mode[0-4]
	Cable	SATA
	Internal ATA Connectors	Four SATA connectors

Technical Specifications

HP 4 Internal Port SAS HBA with RAID	Drives Supported	Up to 4 SATA/SAS drives	
	Channels	4	
	Storage Capacity	1.8TB SAS, 3.0TB SATA	
	Data Transfer Method	PCI-Express	
	Maximum SAS Channel Transfer Rate	3Gb/s per channel	
	Maximum SAS transfer rate	300Mb/sec per port	
	Protocols Supported	SSP, STP, SMP	
	Internal Connectors	1 SAS	
Embedded NC7782 dual-port gigabit server adapter	Network Interface	10Base-T/ 100Base-TX/ 1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3 1000Base-T	
		IEEE 802.3 100Base-TX	
	Data Transfer Method	PCI-X	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP (2 Pair); up to 328 ft (100 m)
Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.	

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.